

Developing Markets for Ecosystem Services



**ARS Water Availability and Watershed
Management Customer Workshop**
September 8, 2010

**OFFICE OF
ENVIRONMENTAL
MARKETS** USDA

Mark Nechodom, PhD
Deputy Director
USDA Office of Environmental Markets

Preview

- The Office of Environmental Markets (OEM)
- 2010 highlights
- Issues and challenges
- ARS and OEM Linkages

OFFICE OF
ENVIRONMENTAL
MARKETS USDA



The Office of Environmental Markets

- Established in response to 2008 Farm Bill, Section 2709
- Helping to build unified, transparent **markets for ecosystem services** where landowners can participate and buyers can trust that they're purchasing a **real conservation benefit**.

In other words...

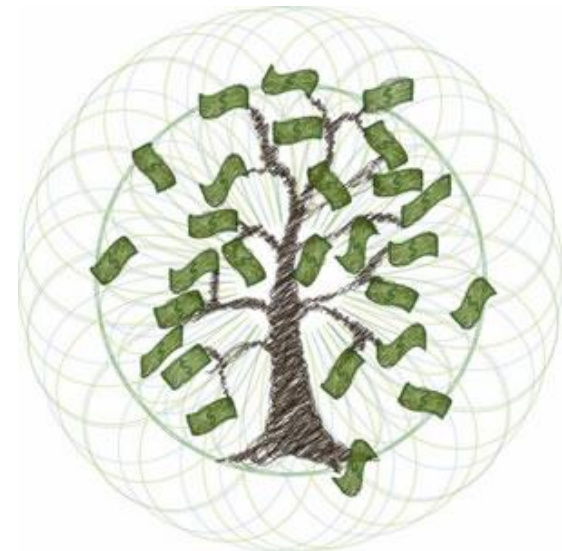


...making markets work for conservation

Markets for Ecosystem Services

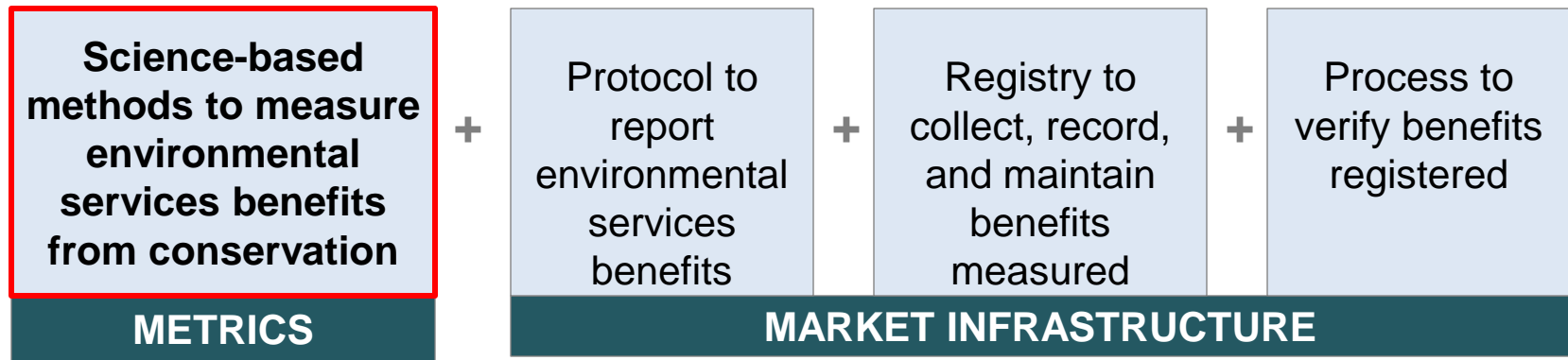
- Place economic value on natural assets currently “outside” the market place
 - Carbon, water, wetlands, biodiversity
- Compensate producers of environmental public goods and services

*“The degradation of ecosystem services represents loss of a capital asset.”
Millennium Ecosystem Assessment*





2008 Farm Bill : Section 2709



Use of existing information: Build on existing activities or information

Consultation: Consult with Federal and State government agencies and nongovernmental interests including farm, ranch and forestry producers; financial institutions involved in environmental services trading; academic institutions; NGO's; and private sector representatives

So how are we doing this?

Chesapeake Bay Environmental Markets Team

- Led by OEM in response to EO 13508
- Includes regulating agencies and those encouraging voluntary conservation:
 - USDA, EPA, CEQ, OMB, DOC, DOI, DOT, DOD, USACE, DHS, Navy
- Facilitates Federal Government collaboration on market infrastructure:
 - Tools to measure the effects of conservation practices
 - Reporting and verification protocols to ensure measurable environmental improvements
 - Transparent registry and trading platform with oversight
 - Piloting, outreach, and evaluation
- Present priority is water quality – supporting EPA and state processes related to the Chesapeake Bay TMDL

Nutrient Trading Tool (NTT)

- NRCS/ARS/EPA online tool
- Combines APEX with user-friendly web interface
- Calculates Δ in on-farm N, P, sediment, NO₂, C, and crop yield from a variety of agricultural practices
- EPA involvement helps validate NTT for regulatory markets
- Prototype will be integrated with COMET-VR API and calibrated down to the county level
- WRI is integrating NTT with its Nutrient Net Tool and the EPA Bay Watershed Model



Water Quality Trading Guidelines Development

- OEM has engaged University of Maryland, Mid-Atlantic Water Program Partner, to develop technical guidelines for how to define and measure the effects of conservation BMPs in a market
- Project includes listening sessions in existing markets and an analysis of implications for new markets
- Work complements CEAP research

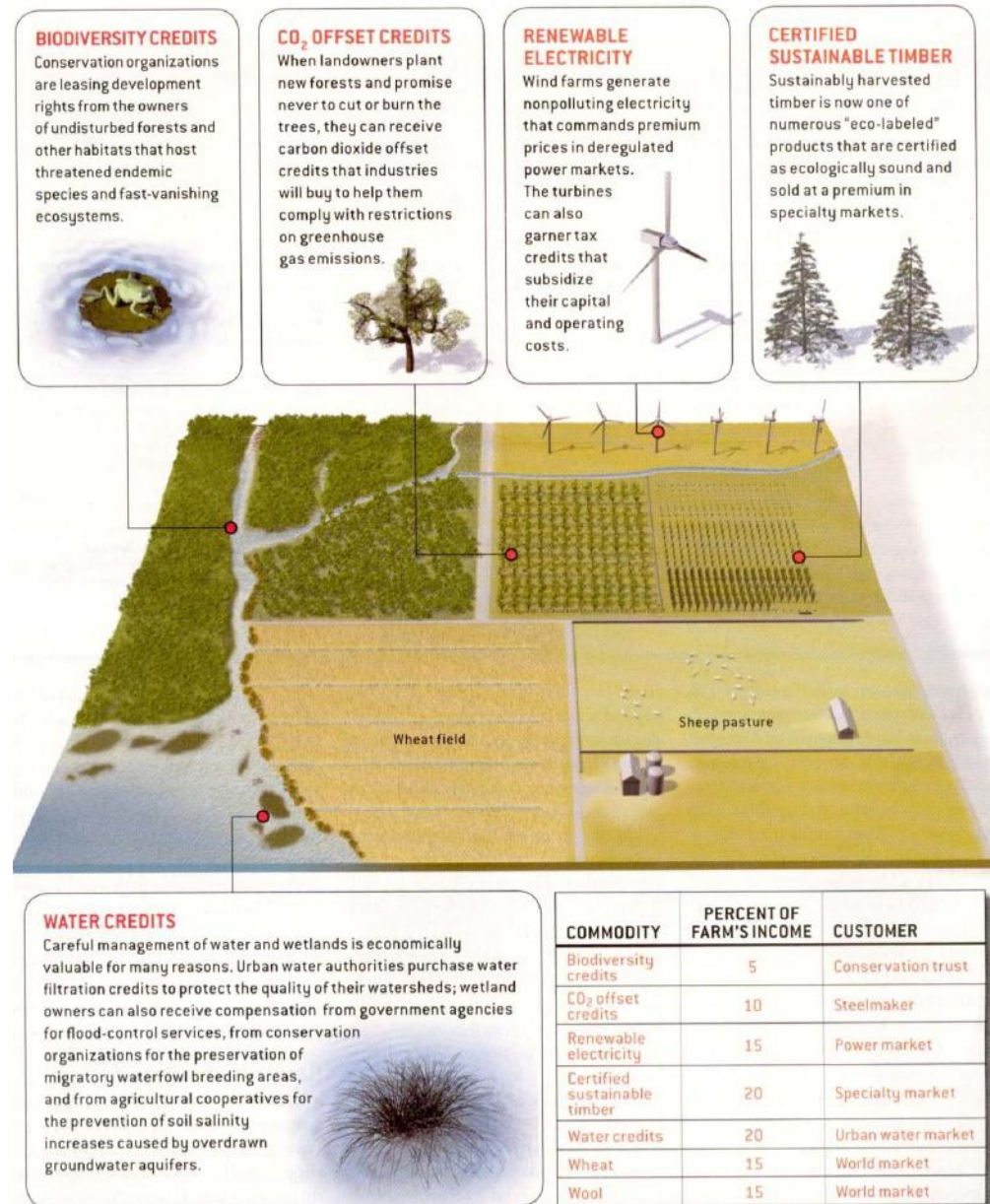


Ohio River and Upper Mississippi River Basins

- USDA, EPA, and Electric Power Research Institute MOU to advance ecosystem services research and management through:
 - Coordinated and collaborative research efforts
 - Analysis of barriers to sustainable ecosystem service management
 - Demonstration projects
- Proposed program of work includes:
 - Online database of existing research and tools
 - Evaluation of existing materials and development of research plan to address gaps in knowledge
 - Development of ecosystem indicators, measurement protocols, baseline assessments and further assessments

Farm of the Future

- Suite of case studies
- Illustrates how select landowners are participating successfully in environmental markets
- Demonstrates challenges and opportunities for farmers, foresters, and ranchers throughout the country



Challenges for Environmental Markets

- Promising approach requiring significant support and on-the-ground proof of concept
- Markets affected by policies and programs across the government

➡ **Scale | Cost | Risk**

➡ **Scientific credibility is key to market success -**
e.g., inter-scalar model/data integration

➡ **Institutional arrangements**

Linkages between ARS Research and OEM Projects

- Chesapeake Bay Environmental Markets Team - Tools to measure the effects of conservation practices
- Nutrient Trading Tool – Data informing APEX inputs and methodologies
- Water Quality Trading Guidelines Development – Synergy with CEAP
- Ohio and Upper Mississippi River Basins – Research-based goals

Thank you



Mark Nechodom, PhD
Deputy Director
mark.nechodom@osec.usda.gov

**OFFICE OF
ENVIRONMENTAL
MARKETS** USDA
